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June 17, 2005

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JUN 20 2005

Re: WILLIAMSBURG RECEIVING & STORAGE
R 2218 PERMIT NO. M-00836
Technical Memorandum: Proposed Pond Irrigation Plan
ISE Project # 02061-02E

Dear Janice and Mike:

Pursuant to discussion with your office and Water Division staff from Lansing some time ago, please find below and attached materials submitted in support of a proposal for irrigation of waters contained within the irrigation pond at the referenced permit facility:

Current Pond Water Quality

Pond waters were sampled and submitted for laboratory analyses on June 15, 2005. Analytical protocols for this sample will include all parameters included in Permit M-0086 Section A. Effluent Limitations and Monitoring Requirements. In addition, analyses for Total Suspended Solids has been requested with the filtrate being subjected to analyses for biological oxidation demand (BOD5). An unfiltered sample was also acquired for BOD5 analyses. Chemical oxidation demand has also been programmed for analyses so that more expedient surrogate analyses may be correlated with BOD5 analyses and enhance future pond water quality monitoring efforts. Table 1 presents the historic analytical data from pond water analyses, either as grab samples from the pond or from pumps discharging from the pond or recirculating water through it.

Review of Table 1 shows the effect of; dilution following removal of wastewater to wastewater treatment plants in second and third quarter of 2002, dilution from precipitation, aeration and neutralization using agricultural lime. First and second quarter sample analyses from 2003 indicate that oxygen demand was significantly reduced and perhaps satisfied. Observations from the June 15, 2005 sampling event suggest that some oxygen demand may exist as a consequence of decaying vegetation submerged along the banks surrounding the pond. Two (2) aerators were operating at the time of sampling. The sample was drawn from below the surface of the pond from the eastern third, 30 feet inward from the southern edge, thus the sample identification E1/3-S. An additional sample will be acquired and analyzed in June, 2005.

Proposed Plan for Pond Water Irrigation

Pond water is proposed to be irrigated in accordance with the conditions of the existing Permit # M-00836. In addition to these limitations, the proposed discharge will be accomplished in batch-mode. Water from the pond will be pumped to several vacant cherry brining pits as shown on the attached figure. Brining pits will be filled approximately 25% full with pond waters. This initial trail volume will be determined from laboratory results acquired in June 2005. The remainder of the brining pit (leaving 18-inches freeboard) will be filled with either well water or storm water. Use of stormwater for dilution will only be undertaken following a thorough conformance review of the existing SWP3. Batch volumes will be estimated through use of a staff gauge and by tracking pump operation cycles and correlating with pump performance specifications.

When the batch is completed, a representative sample will be acquired and analyzed for permit parameters and COD with conductivity being measured in the field throughout the batching operation. If laboratory results indicate that the dilution water to pond water ratio requires adjustment to optimize batch operations, then the respective volumes will be recalculated and more or less dilution water added.

When laboratory results indicate that prospective effluent from each batch will meet permit limitations, the batch will be discharged to the areas identified in the permit at or below permitted application rates. All permit operating conditions (monitoring, observation, attendance, etc.) will be adhered to and all reporting obligations maintained.

Upon completion of four (4) batch operations, the conductivity and laboratory data will be reviewed and evaluated and a revised batching operation may be proposed with increased levels of automation. Modifications proposed may include:

Batching larger batches through use of additional pits or tanks
Using a static mixer and chemical feed pumps to mix dilution and pond waters
Filtering pond waters prior to dilution

Dilution and discharge is proposed to continue in accordance with an MDEQ-approved plan until subsequent modifications are similarly approved.

Please call me to discuss this proposed method of pond water reduction. I look forward hearing from you at your earliest opportunity. I appreciate your attention to this matter.

Respectfully submitted,
INLAND SEAS ENGINEERING, INC.

Andrew Smits, P.E.
Environmental Engineering
Department Manager

cc. Mr. Christopher Hubbell- WRS
Joseph E. Quandt, Esq.- ZKDBT&Q
Edgar Roy, III Esq.- BFA&R

TABLE 1

Analytical Parameter	Sampler	R. Banwell	A. Smits	J. Heurer	J. Heurer	A. Smits	T. Gates	T. Gates	T. Gates	G. Hanning	Adil T.	J. Hill	J. Hill
		3/15/2002	4/27/2002	7/8/2002	7/8/2002	7/22/2002	7/23/2002	7/24/2002	7/25/2002	8/1/2002	9/5/2002	3/25/2003	3/25/2003
	Permit Limits	Pond Sample	Pond Effluent	Pond Edge	Pump Sample	Pond Surface S.	Pond Sample	Pond Sample	Pond Sample	Retention Pond	Pond Sample	Pond Shallow	Pond Deep
Nitrogen Species													
TIN	5.0	4.365	6.55	13	16	14.7	NA	NA	NA	16.4	20.3	0.97	16.356
Ammonia	none	4.31	6.55	NA	NA	14.7	NA	NA	NA	16.4	20.3	0.6	5.47
Nitrate	none	< 0.15	< 2.5	NA	NA	< 0.25	NA	NA	NA	<0.25	< 0.25	0.37	9.74
Nitrite	none	0.055	< 2.5	NA	NA	< 0.010	NA	NA	NA	<0.010	< 0.010	NA	1.146
Major Ions													
Sodium	150	291	202	270	270	219	NA	NA	NA	294	**238**	12.1	293
Calcium	none	NA	302	NA	NA	212	NA	NA	NA	288	256	NA	NA
Sulfate	250	NA	252	890	1200	149	NA	NA	NA	76	**51.9**	< 20	70
Chloride	250	650	620	630	590	577	NA	NA	NA	589	572	7	600
Phosphorous													
Ptot	1.0	3.16	3.85	4.80	5.50	2.81	NA	NA	NA	4.89	2.33	< 0.25	0.38
Carbon Species													
Alkalinity	none	NA	28	NA	NA	NA	NA	NA	NA	NA	298	NA	NA
BOD	none	NA	3330	3100		> 3800	NA	NA	NA	>3800	632	< 200	< 200
COD	none	NA	5140	NA	NA	4640	**4883**	**4571**	**4780**	4150	**1026**	100	300
Other													
Specific Conductance	none	NA	3360	NA	NA	1810	NA	NA	NA	2150	***3128***	139	3340
pH	none	4.6	4.2	NA	NA	NA	4.61	4.71	4.61	NA	7.21	NA	NA
Dissolved Oxygen	none	NA	NA	NA	NA	NA	< 1	NA	NA	NA	1.5	NA	NA

All laboratory results by SOS Analytical Laboratories, except as noted below

4883 Laboratory report by Trace Analytical Laboratories

890 Laboratory report by SPL Laboratories

BOD Parameters with this shading are not required by Permit M00836

3128 Value from field measurements

Exemption 9